4. *Supply Analysis*

Supply of a commodity refers to the various quantities of the commodity which a seller is willing and able to sell at different prices in a given market at a point of time, other things remaining the same. **Supply** is what the seller is able and willing to offer for sale. The Quantity supplied is the amount of a particular commodity that a firm is willing and able to offer for sale at a particular price during a given time period.

The law of supply states that "**a firm will produce and offer to sell greater quantity of product service at the price of product or service rises, Other thing be equal**."

Law of supply states that "**other factors remaining constant, price and quantity supplied of a good are directly related to each other**." In other words, when the price paid by buyers for a good rises, then suppliers increase the supply of that good in the market.

Law of supply depicts **the producer behavior at the time of changes in the prices of goods and services. When the price of a good rises, the supplier increases the supply in order to earn a profit because of higher prices.**

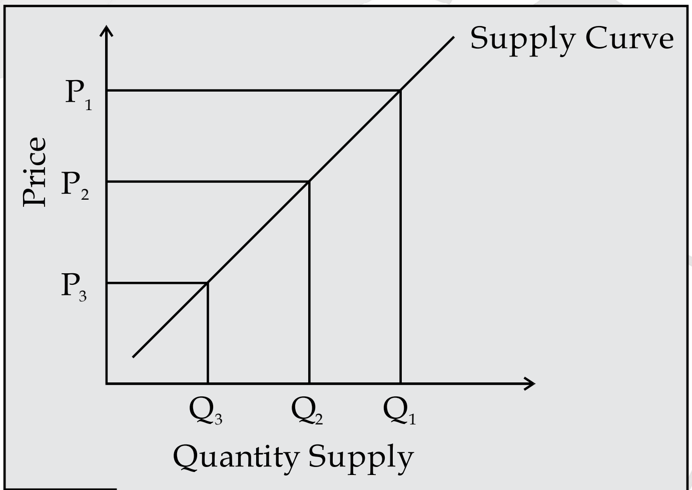

Fig. : Supply Analysis

The above diagram shows the supply curve that is upward sloping (positive relation between the price and the quantity supplied). When the price of the good was at P_3, suppliers were supplying Q_3 quantity. As the price starts rising, the quantity supplied also starts rising.

Explaining the Law of Supply

There are three main reasons why supply curves are drawn as sloping upwards from left to right giving a positive relationship between the market price and quantity supplied :

The Law of Supply states that "**when the price of a good rises, and everything else remains the same, the quantity of the good supplied will also rise.**"

In short,

$\boxed{\uparrow P \rightarrow \uparrow Qs}$

1. **The Profit Motive :** When the market price rises following an increase in demand, it becomes more profitable for businesses to increase their output.

2. **Production and Costs :** When output expands, a firm's production costs tend to rise, therefore a higher price is needed to cover these extra costs of production. This may be due to the effects of diminishing returns as more factor inputs are added to production.
3. **New Entrants Coming into The Market :** Higher prices may create an incentive for other businesses to enter the market leading to an increase in total supply.

Interpreting changes Price and Quantity

Demand And Supply Shifted		Effect on Price and Quantity
If Demand Rises	The Demand Curve Shifts to the Right	Both Price and Qty. Increases
If Demand Falls	The Demand Curve Shifts to the Left	Both Price and Qty. Falls
If Supply Rises	The Supply Curve Shifts to the Right	Price falls but Qty. Increases
If Supply Falls	The Supply Curve Shifts to the Left	Price Increase but Qty. Decreases

Assumptions

1. **No Change in Cost of Production :** It is assumed that there is no change in cost of production because of the profit decreases with the increase in cost of production and causes the decrease in supply. If price of a commodity decreases and cost of production also decreases, at the same time, the quantity supplied does not decrease and profit remains constant.
2. **No Change in Technology :** It is also assumed that technique of production does not change. If better methods of production are invented, profit increases at the previous price. The sellers increase supply and law of supply does not operate.
3. **No Change in Climate :** It is also assumed that there is no change in climatic situation. For example, at any place flood or earth quake occurred. The supply of goods decreases at that place at previously prevailing price.
4. **No change in Prices of Substitutes :** If the prices of substitutes of a commodity fall then the tendency of consumers diverts to substitutes therefore, the supply of a commodity falls without any change in price.
5. **No Change in Natural Resources :** If the quantity of natural resources (minerals, gas, coal, oil etc) increases, the cost of production decreases. It causes to increase in quantity supplied.
6. **No Change in Price of Capital Goods :** The capital goods are raw material, machinery, tools etc. The cost of production increases due to increase in prices of capital goods. It can lead to decrease in quantity supplied.
7. **No Change in Political Situation :** The amount of investment is affected by the change in political situation of a country. The production of goods decreases due to decrease in investment.
8. **No Change in Tax Policy :** It is also assumed that the taxation policy of government does not change. The increase in taxes effects the investment and production and supply of goods decreases.

Factors that Shift the Demand Curve

1. Change in Consumer Incomes : An increase in income shifts the demand curve to the right because a consumer's demand for goods and services is constrained by income, higher income levels relax somewhat that constraint, allowing the consumer to purchase more products. Correspondingly, a decrease in income shifts the demand curve to the left. When the economy enters a recession and more people become unemployed, the demand for many goods and services shifts to the left.

2. Population Change : An increase in population shifts the demand curve to the right. Imagine a college town bookstore in which most students return home for the summer. Demand for books shifts to the left while the students are away. When they return, however, demand for books increases even if the prices are unchanged. As another example, many communities are experiencing "urban sprawl" where the metropolitan boundaries are pushed ever wider by new housing developments. Demand for gasoline in these new communities increases with population. Alternatively, demand for gasoline falls in areas with declining populations.

3. Consumer Preferences : If the preference for a particular good increases, the demand curve for that good shifts to the right. Fads provide excellent examples of changing consumer preferences. Each Christmas season some new toy catches the fancy of kids, and parents scramble to purchase the product before it is sold out.

4. Prices of Related Goods : If prices of related goods change, the demand curve for the original good can change as well. Related goods can either be substitutes or complements.

- **Substitutes** are goods that can be consumed in place of one another. If the price of a substitute increases, the demand curve for the original good shifts to the right. For example, if the price of Pepsi rises, the demand curve for Coke shifts to the right. Conversely, if the price of a substitute decreases, the demand curve for the original good shifts to the left.
- **Complements** are goods that are normally consumed together. Pen and Ink are complements.

  If the price of a complement decreases, the demand curve for the original good shifts to the right. If, for example, the price of computers falls, then the demand curve for computer software shifts to the right.

Exception Supply of Law

- It explain only static situation
- Hope of change in price of commodity in Near future
- It does not apply on agricultural Products
- It does not apply on Artistic Goods
- It does not apply on the goods of Auction
- It does not apply on the supply of labour in under Developed Countries

Elasticity of Supply

Elasticity of Supply is defined as the percentage change in quantity supplied divided by percentage change in price, price and quantity supplied, in usual cases, move in the same direction, the coefficient of ES is positive.

> **According to Lipsey**, *"Elasticity of supply is the ratio of percentage change in quantity supplied over the percentage change in price."*
> **In the words of Prof. Bilas**, *"Elasticity of supply is defined as the percentage change in quantity supplied divided by percentage change in price."*

Price elasticity of supply measures the relationship between change in quantity supplied and a change in price.

Focus Formula

Price Elasticity of Supply

$$PES = \frac{\text{Percentage Change in Quantity Supplied}}{\text{Percentage Change in Price}} \text{ or } \frac{\Delta Q}{\Delta P} \times \frac{P_1}{Q_1}$$

where ΔQ = *change in the demand (difference in demand)*

ΔP = *change in the price (difference in the price)*

P_1 = *initial price (first price/old price)*

Q_1 = *initial demand (first demand/old demand)*

The value of elasticity of supply is **positive**, because an increase in price is likely to increase the quantity supplied to the market and vice versa.

Types of Elasticity of Supply

1. Unit Elastic Supply : *When change in price of X brings about exactly proportionate change in its quantity supplied then supply is unit elastic* i.e. elasticity of supply is equal to one, e.g. if price rises by 10% and supply expands by 10% then change in the quantity supplied, the supply is relatively inelastic or elasticity of supply is less than one.

$$Es = \frac{\text{\% Change in Quantity Supplied of X}}{\text{\% Change in Price of X}}$$

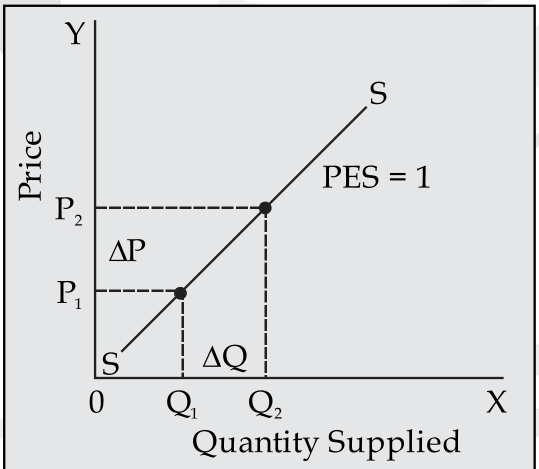

Fig. : Unit Elastic Supply

2. Highly Elastic Supply Curve : *Ratio of change in quantity supplied is greater than the ratio of change in price.* As a result, when we put their values in the above mathematical expression, we get Price Elasticity Supply >1.

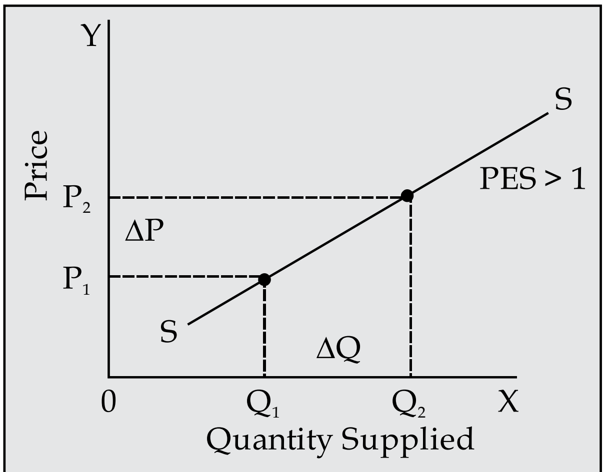

Fig. : Highly Elastic Supply Curve

3. Less Elastic Supply or Inelastic Supply : *When change in price brings about more than proportionate change in the quantity supplied, then supply is relatively elastic or elasticity of supply is greater than one.*

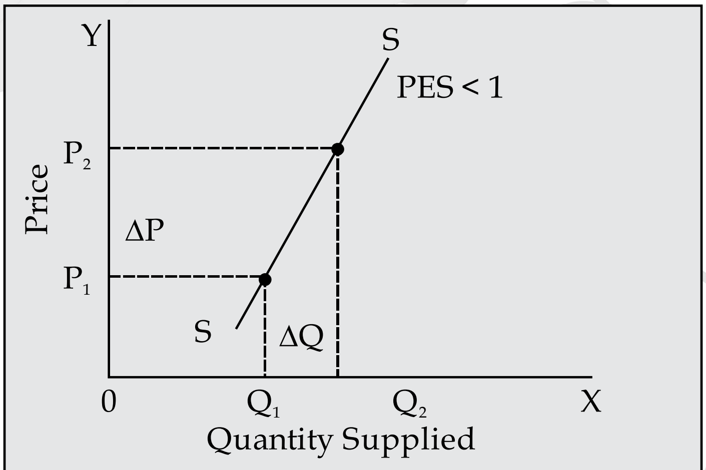

Fig. : Less Elastic Supply or Inelastic Supply

4. Perfectly Inelastic Supply : *When a change in price has no effect on the quantity supplied then supply is perfectly inelastic or the elasticity of supply is zero.*

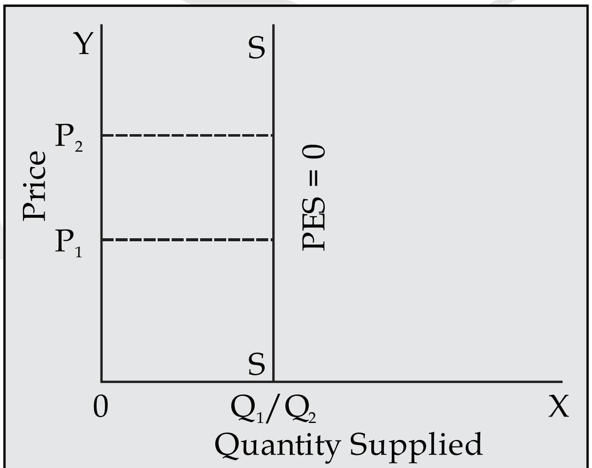

Fig. : Perfectly Inelastic Supply

5. Perfectly Elastic Supply : *When a negligible change in price brings about an infinite change in the quantity supplied, then supply is said to be perfectly elastic or elasticity of supply is infinity.*

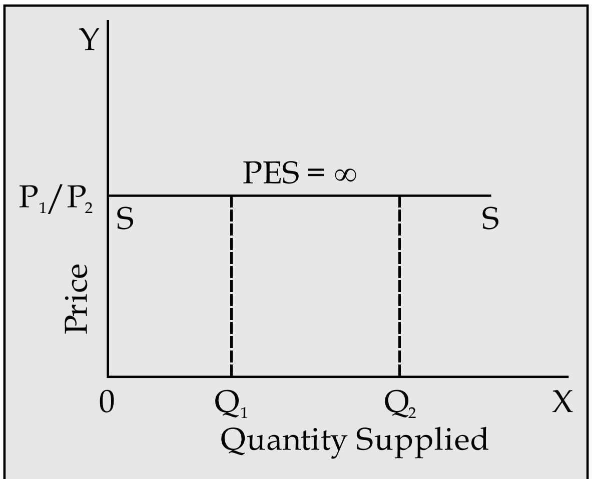

Fig. : ***Perfectly Inelastic Supply***

Supply and Demand

Alfred Marshal published his books "**Principle of Economics**" which define how supply and demand Interacted to determine of Price. The price level of goods essentially is determined by point at which quantity supplies equal quantity of demand.

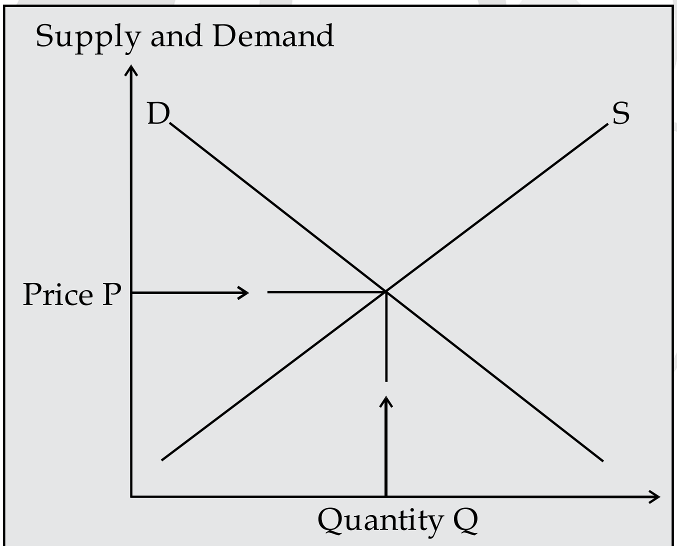

Fig. : ***Supply and Demand***